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ABSTRACT

This study examined the relationship between the oral language fluency of different socioeconomic status (SES) children entering first grade and their success in learning to read, as measured at the end of the school year. Complete data were obtained from 27 upper, 24 middle, and 23 lower SES level students. Oral language samples were recorded in semi-structured and spontaneous situations and then transcribed and keypunched for computer analysis. Oral language measures and a measure of knowledge of letter names were used as predictor variables in regression analysis; criterion measures were reading scores at the end of grade one. Results of the oral language measure show a wide variance for all three SES groups, while results of the reading achievement tests do not. Several factors account for this difference, including the fact that all of the students had been in formal reading instruction for the same amount of time. The study report emphasizes the positive relationship between oral language fluency and reading achievement and suggests measures for improving future studies. (MAI)

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PREDICTING FIRST-GRADE READING ACHIEVEMENT FROM SELECTED MEASURES OF ORAL LANGUAGE PERFORMANCE[1]

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The objective of this study was to determine the extent to which measures of oral language complexity, as assessed through the oral production of children entering grade one, predict success in learning to read as measured at the end of grade one.

While the literature on beginning reading suggests that there is a positive relationship between a child's oral language fluency and his subsequent reading achievement, relatively few investigations provide evidence to support such a relationship among first-grade children. There appear to be two major reasons for this lack of evidence. First, it has been considered self-evident that those children who possess good oral language skills will also become good readers since talking

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and reading are both language acts. Secondly, the collection and analysis of the oral language of young children has been extremely time consuming and complex.

Predicting success in reading at the first-grade level has been limited primarily to skills assessed through the use of reading readiness tests and a number of investigators have studied the predictive validity of these tests. Most often studied have been auditory discrimination (Durrell & Murphy, 1953; Dykstra, 1966; Harckman & Hagen, 1970; Lingren, 1969; and McNinch, 1972) and visual discrimination (Barrett, 1965; Evanchko, Ollila, Downing, & Braun, 1973; Harrington & Durrell, 1955; and Paradis, 1974) skills. In most cases, the best predictor of success in reading at the end of grade one, has been the student's knowledge of letter names at the beginning of grade one (Barrett, 1965; Durrell & Murphy, 1955; Johnson, 1969; and Lowell, 1971).

In a study of the predictive value of oral language and first-grade reading achievement, Bougere (1969) found that the predictive value of the Metropolitan Readiness Test could be improved somewhat by the addition of measures of oral vocabulary. In a similar study at the first-grade level, Hopkins (1976) examined the predictive value of ten oral language variables and found that the best predictor, average utterance length, only accounted for about ten percent of the variance in the criterion measure, reading achievement. In a follow-up of 265 kindergarten, Felsenthal and

Moe (1974) reported that the best kindergarten predictor of second-grade reading achievement was the teachers' evaluation of students' oral language. And in one of the most widely quoted quoted studies of language development, Loban (1976) followed-up 211 kindergarten in a thirteen-year longitudinal study and concluded that "those superior in oral language in kindergarten and grade one before they learned to read and write are the very ones who excel in reading and writing by the time they are in the sixth grade" (p. 71).

Methods

Language samples were obtained by recording students' utterances early in the first grade and later transcribing and keypunching the samples for computer analysis. The oral language measures and a measure of knowledge of letter names were used as predictor variables in regression analyses where the criterion measures were end-of-grade-one reading scores.

Samples

A group of 30 first-grade children was drawn from each of three socioeconomic status (SES) schools. The mean age of the students from all three SES groups at the beginning of the school year, September 1, 1976, was six years and seven months. Complete data were obtained from 27 upper, 24 middle, and 23 lower SES level students for this investigation.

Data Collection

Oral language samples were collected in semi-structured and spontaneous situations during the approximate period of mid-September through mid-November. In the semi-structured situation, students were individually asked four questions to elicit utterances which were recorded. The spontaneous samples were obtained by having a micro-cassette tape recorder attached to the child's clothing during a playground recess period.

Since knowledge of letter names has been the best single predictor of first-grade reading achievement in the past, the Recognition of Letters Test of the Clymer-Barrett Prereading Battery (1967) was also administered to all students from whom oral language samples were obtained.

Students were administered the Stanford Achievement Tests: Reading, Primary Battery, Level I (Madden et al., 1973) in May of 1977. The portions of the test used as criterion measures were the comprehension subtest (Part B, 42 items) and total reading (Tests 2 & 3, 147 items) scores.

Data Analysis

Language samples were transcribed and keypunched for computer analysis which utilized programs described elsewhere (Hopkins, 1976; Moe, 1974). A separate analysis, which provided ten oral language measures, was done for each student's samples, semi-structured and spontaneous. Those ten measures were the predictor variables later used in

the regression analyses; they are variables 1 through 10 listed in Table I.

In most cases the nature of the predictor variable is apparent by its name in Table I. Several, however, need a more complete description. A token is any occurance of any word and the number of tokens is the total number of words used in a sample. The number of different types is the number of different words in a sample. A corrected type-token ratio (Carroll, 1964) was used because of varying samples sizes. The number of uncommon words was obtained by operationally defining a word as being uncommon if it did not occur among the first 500 words from the Carroll, Davies, Richman (1971) list. Predictor variable number 11 in Table I indicates performance on the Recognition of Letters Test.

Table I about here

In addition to the descriptive analyses, a one-way analysis of variance (ANOVA) by SES group for each predictor and criterion variable was made, and regression analyses were conducted with the reading achievement scores used as the criterion measures (Nie, Bent, & Hull, 1975).

Results

The results presented here include only those obtained through the use of the semi-structured language-collection method 1) because of space limitations, 2) because the investigators believe that the semi-structured samples provided a better indicator of language competence, and 3) be-

cause, as far as the regression analyses were concerned, the findings were similar. Where major differences resulted from using the two types of samples, they will be noted below.

Descriptive Findings

Table I shows that for all the oral language measures obtained in the semi-structured situation, the means consistently descend in order from upper to middle to lower in the SES groups. The ANOVA by SES group yielded significant differences (noted with asterisks) among most of the oral language variables, but not among the other variables. The significant ANOVAs were because of differences between the upper and lower SES groups.

While the same kinds of trends (favoring the upper SES group, etc.) were found with the spontaneous samples, no significant differences by SES group were found for any of the variables.

Prediction Findings

Results of the regression analyses where knowledge of letter names was not included as a predictor variable were generally low; with the best four oral language variables used in the regression equation, the highest R Square was .44 with the upper SES group and in most cases it was less than .30 with either comprehension or total reading used as the criterion measures:

The inclusion of the letter names measure as a predictor variable increased the R Square values and as Table II indicates it was the best

predictor for upper and middle SES groups for both criterion measures. The other variables included in the equation were average utterance length, the number of words used once, and the number of uncommon words. Table

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Table II about here

II indicates the maximum R Square for the four variables combined and the R Square for the best single predictor.

In a separate analysis where SES was included as a predictor variable, it was not found to be a significant predictor of the criterion measures.

With the spontaneous samples, the R Square was higher in all cases (ranging from .31 to .54) although the best predictor variable continued to be knowledge of letter names.

Discussion

Despite the supposition that measures of oral language fluency should be strong predictors of reading achievement among first-grade children, the results of this study do not appear to present powerful support for such a notion. There are several aspects of this investigation, however, which should be considered carefully.

Results of the oral language measures show a wide variance among most of the variables for all three SES groups. Results of the reading

achievement tests, however, do not reflect a similar wide variance for perhaps two reasons. The first deals with the fact that most of the children had been involved in formal reading instruction for only eight months (whereas they had been actively using oral language for over 60 months) and the variance--or spread--in performance had had little chance to occur; to put it another way, the more capable students had not yet had an opportunity to really excel. Ostensibly, the range of achievement among these students will be greater by the end of grade two and even greater by the end of grade three. Another reason why the magnitude of the prediction was not greater lies in the way reading achievement was determined. It can be speculated that had reading achievement been assessed individually, through the use of some type of graded passages perhaps, that the measures would have been more valid; such measures would probably provide a greater range of scores and, therefore, the possibility of increasing the strength of the predictions would exist.

Another aspect to consider deals with the meaning of an R Square value. There is a tendency to assume that if a regression equation yields an R Square of .44, for example, that the predictors can account for--or predict--44 percent of the variance of the criterion measure and that the other 56 percent must be accounted for by something unrelated to or other than the predictor variables; this assumption is incorrect. All that can be said about the unexplained portion of the variance is that

other factors may provide for a better prediction; in this study those other factors may well have been more sensitive measures of oral language performance.

A third aspect of this study to consider carefully pertains to what is measured in a test of letter names. The investigators reject the notion that there is some single ability or construct that may be called "knowledge of letter names." Rather, it seems reasonable to believe that in assessing knowledge of letter names, that a number of "abilities" such as the visual discrimination of letters, the auditory discrimination of phonemes, attending to a verbal task, and following directions are also being tested and that these "abilities" are also language abilities. The test of knowledge of letter names used in this study is also a language measure.

Additionally, a measure which would have added a potentially valuable dimension to this investigation was the classroom teacher's evaluation of individual student's oral language fluency. Those who conduct similar studies are urged to consider a scale like the one used by Loban (1976), for example.

Finally, both speaking and reading are acts which require the use of language. That there is a positive relationship between oral language fluency and reading achievement is a fact that should be emphasized.

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TABLE I

DESCRIPTIVE INFORMATION FOR THE SEMI-STRUCTURED SAMPLES

VARIABLE NAME	N=27 UPPER		N=24 MIDDLE		N=23 LOWER	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
1. Number of Tokens**	1091	435	940	370	717	290
2. Number of Utterances	108	44	102	36	94	38
3. Average Utterance Length*	10.3	3.7	9.5	3.8	7.6	2.3
4. Average Word Length	3.813	.110	3.780	.135	3.765	.130
5. Number of Syllables**	1331	535	1131	425	864	349
6. Corrected Type-Token Ratio	7.0	.8	6.8	.7	6.5	.8
7. Number of Types**	326	94	292	82	246	76
8. Words Used Once**	174	47	160	40	136	40
9. Number of Uncommon Words**	163	55	141	50	115	43
10. Number of Prepositions*	22	5	20	4	18	5
11. Letter Names	33	2	32	5	31	6
12. Age in Months	79	5	78	3	80	5
13. Reading Comprehension	32	9	30	10	29	8
14. Total Reading	117	21	110	26	107	19

*significant difference at .05 level (3.13)
**significant difference at .01 level (4.92)

TABLE II

RESULTS OF THE STEPWISE REGRESSION
ANALYSES WITH LETTER NAMES AND THREE ORAL

LANGUAGE[1] PREDICTOR VARIABLES FOR THE SEMI-STRUCTURED SAMPLES

SES Group	Best Predictor
UPPER (N=27)	
Comprehension	
Maximum R Square = .14	letters (.07)
Total Reading	
Maximum R Square = .13	letters (.09)
MIDDLE (N=24)	
Comprehension	
Maximum R Square = .39	letters (.27)
Total Reading	
Maximum R Square = .44	letters (.36)
LOWER (N=23)	
Comprehension	
Maximum R Square = .29	average utterance length (.07)
Total Reading	
Maximum R Square = .46	average utterance length (.15)

[1] Oral language predictor variables: average utterance length
words used once
number of uncommon words